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While a pile-driver sets one of the 90-ft. precast concrete piles, workmen place reinforcing for deck slab on $6,000,000 railroad pier at Norfolk, Virgina

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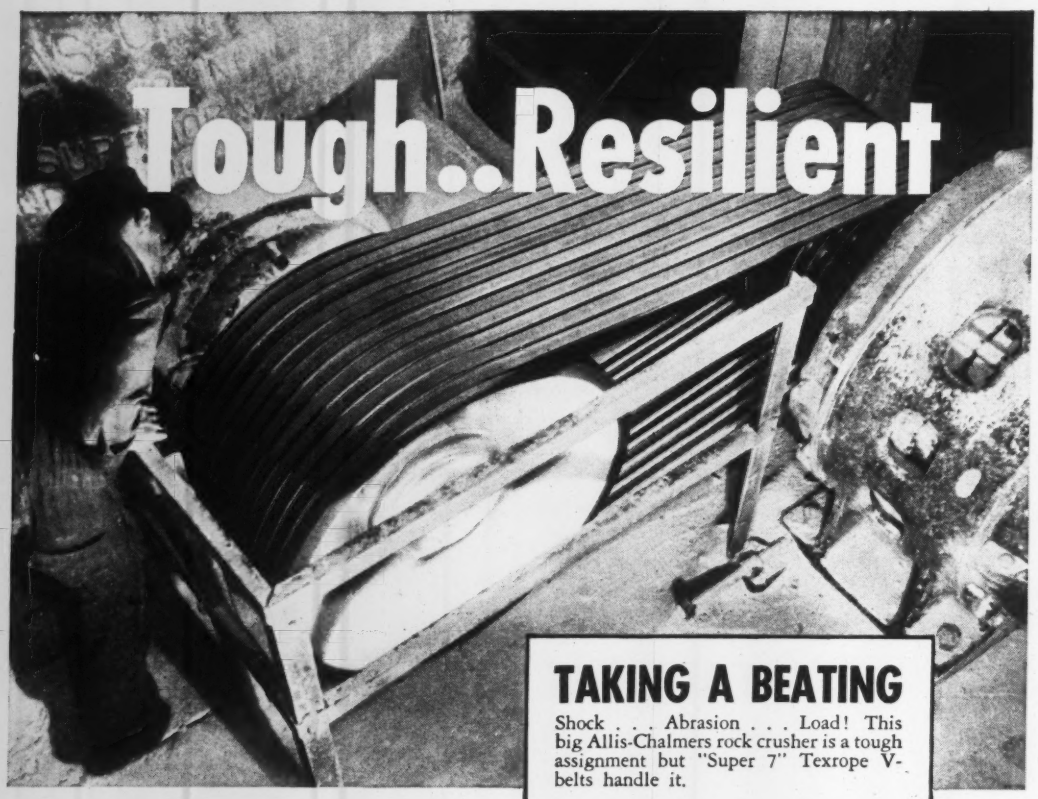

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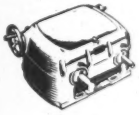

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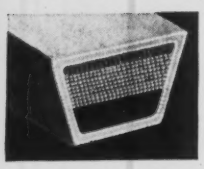

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News of the Week

ENGINEERING NEWS-RECORD • AUGUST 28, 1947 • VOLUME 139 • NUMBER 9

New airport program allots $137 million for 896 projects

Federal government will supply $66,569,590 and states, territories, and local groups $70,235,095 for construction in continental U. S. and possessions

To make use of the federal funds remaining from the $45,000,000 appropriation for the fiscal year 1947 and the $32,500,000 appropriated for the present fiscal year (*ENR* July 31, vol. p. 146), the Civil Aeronautics Administration has prepared a revised federal-aid airport program.

The new schedule calls for total expenditure of $136,804,685 at 908 locations. The federal government will supply $66,569,590 and the states, territories and local groups $70,235,095.

CAA's revised program includes 896 projects for the continental U. S., of which 725 are for the smaller airports—Class 1, 2 and 3—and 171 are for Class 4 fields and larger. However, with the latter work only three entirely new Class 4 or larger terminals will be built. Of the $64,816,515 of federal funds to be spent on continental construction, slightly over $34,000,000 is for development of Class 3 or smaller fields and above $30,000,000 for Class 4 and larger fields.

For outside U. S., $3,274,623

For work outside the continental U. S. $3,274,633 is to be spent, consisting of $1,521,558 sponsor's contribution and the remainder federal funds. With this work six fields will be improved in Alaska at a cost of $784,133, five fields in Hawaii at $890,000, and one field in Puerto Rico. A total of $1,600,000 is earmarked for the latter job.

Of the combination of federal and matching funds to be spent, 10 percent will be used for obtaining land, 8 percent for buildings at the fields, and 82 percent for other items of airport construction. The latter work will include the construction of runways and entirely new airports and installation of high intensity runway lights.

The accompanying table lists the fund to be spent in each state and the number of airfields to be improved in that state. The CAA can provide up to 50 percent of the cost of construction for a given project and one-fourth the cost of the land. For details on how federal airport aid must be used see *ENR* Feb. 20, 1947, vol. p. 295.

Planned to serve the major industrial centers, Class 4 and 5 airports will be built to accommodate the largest planes planned for the immediate future, or those weighing 74,000 lb. and over. Runway widths will need to be at least 200 ft., and the lengths 4,500 ft. or over for Class 4 projects, and 5,500 ft. for Class 5 terminals.

SUMMARY OF 1947–48 FEDERAL AIRPORT PROGRAM

Name of State	No. of Projects by Airport Class			Allocation of Federal Funds		Sponsor's contribution	Total program
	1, 2, 3's	4 and above	Total	From State apportionment	From Discretionary fund		
Alabama	6	2	8	$317,736	0	$328,486	$1,646,222
Arizona	8	3	11	1,066,575	$156,910	1,035,419	2,258,904
Arkansas	11	5	16	839,924	120,073	1,032,737	1,992,734
California	27	17	44	2,726,618	1,699,381	4,216,492	8,642,491
Colorado	17	1	18	1,046,019	0	975,031	2,021,050
Connecticut	2	3	5	342,222	0	348,223	690,445
Delaware	0	1	1	30,000	0	30,000	60,000
District of Columbia	0	0	0	0	0	0	0
Florida	12	5	17	794,985	0	744,475	1,479,460
Georgia	12	2	14	1,129,788	74,129	1,231,193	2,429,110
Idaho	41	2	43	814,043	177,233	827,027	1,818,358
Illinois	10	2	12	2,068,297	3,023,750	6,270,547	11,362,594
Indiana	17	6	23	994,309	258,292	1,410,851	2,663,452
Iowa	20	2	22	806,502	0	952,511	1,759,013
Kansas	30	2	32	1,057,945	109,982	1,337,815	2,505,742
Kentucky	12	2	14	910,988	132,660	1,377,250	2,420,898
Louisiana	11	5	16	892,429	62,398	1,063,578	2,018,405
Maine	4	1	5	264,967	0	271,968	536,935
Maryland	3	3	6	468,024	494,126	1,118,450	2,080,600
Massachusetts	7	3	10	940,017	418,933	1,385,263	2,744,213
Michigan	30	5	35	1,870,924	357	2,375,163	4,246,444
Minnesota	22	5	27	1,289,830	540,620	1,970,580	3,801,030
Mississippi	14	3	17	777,656	0	823,914	1,601,570
Missouri	28	2	30	1,346,986	836,258	2,621,316	4,804,560
Montana	35	3	38	1,164,373	0	1,043,871	2,208,244
Nebraska	26	4	30	918,309	44,833	1,130,959	2,094,101
Nevada	3	2	5	960,313	67,381	624,683	1,652,377
New Hampshire	14	1	15	177,104	14,466	212,735	404,305
New Jersey	4	2	6	900,307	65,745	986,673	1,952,730
New Mexico	16	4	20	1,122,796	0	896,357	2,019,153
New York	6	7	13	3,148,932	1,654,093	4,812,775	9,615,800
North Carolina	8	4	12	1,160,475	187,320	1,516,335	2,864,330
North Dakota	24	5	29	486,040	0	548,540	1,034,580
Ohio	12	5	17	1,758,284	323,926	2,614,924	4,697,134
Oklahoma	23	3	26	1,059,944	243,460	1,385,336	2,688,740
Oregon	17	9	26	624,063	0	533,466	1,157,529
Pennsylvania	22	2	24	2,367,510	1,355,997	3,790,455	7,513,962
Rhode Island	1	1	2	152,835	51,770	204,605	409,210
South Carolina	4	2	6	644,054	40,696	703,750	1,388,500
South Dakota	14	0	14	768,515	0	722,323	1,490,838
Tennessee	14	4	18	940,717	647,273	1,767,372	3,355,362
Texas	63	13	76	3,549,984	197,217	4,310,652	8,057,853
Utah	17	5	22	830,662	208,034	659,225	1,597,971
Vermont	5	1	6	153,281	85,519	253,500	92,300
Virginia	5	2	7	893,868	40,196	934,064	1,808,128
Washington	16	5	21	945,797	709,403	1,694,900	3,950,100
West Virginia	2	1	3	584,967	242,088	827,055	1,654,110
Wisconsin	23	3	26	1,188,451	533,711	2,086,188	3,308,350
Wyoming	7	1	8	265,615	0	204,500	470,115
Totals	725	171	896	$49,997,985	$14,818,530	$68,713,537	$133,530,052

NEWS IN BRIEF

In telegraphic form, here are latest news developments on the engineering and construction front during the week.

Construction—Santa Fe Railway will build a $2,500,000 resort hotel near *Williams, Ariz.* . . . Tellepsen Construction Co. has a contract to build a $4,500,000 chlorine plant for Dow Chemical Co. at *Freeport, Tex.* . . . Voters will decide in November on bond issues for a $2,855,000 school building program for *East Liverpool, Ohio,* and a $225,000 jail at *Lisbon* . . . Pennsylvania takes bids Sept. 24 for a $3,000,000 building at the State Hospital, *Philadelphia* . . . Wallick and Osborne Construction Co. has contract for removal of 3,500,000 cu. yd. of earth for an Illinois River levee opposite *Beardstown, Ill.* . . . Geo. A. Fuller Co. has a $2,000,000 contract for Our Lady of Lourdes Hospital at *Camden, N. J.* . . . Work has started on a $450,000 addition to Holy Cross Hospital, *Calgary, Alta.* . . . Plans are drawn for a $2,100,000 Harbor Technical Institute at *Wilmington, Calif.* . . . First construction on the Tennessee Gas Transmission Co.'s $55,000,000 natural gas pipeline from *South Texas* to *West Virginia* has been authorized by the FPC . . . M. K. Goetz Brewing Co. will build a $750,000 addition at *St. Joseph, Mo.* . . . A $1,200,000 produce market will be built at *Hartford, Conn.* . . . Crucible Steel Co. has awarded Koppers Co., Inc., a contract for a $6,000,000 by-products plant near *East Liverpool, Ohio* . . . Voters have approved bonds of $1,500,000 for a general hospital at *Greenville, S. C.* . . . A $300,000 hospital will be built at *Lagrange, Md.* . . . A $1,000,000 hotel and a $1,000,000 apartment development will be built at *Galveston, Tex.* . . . Work will start soon on a $1,815,000 state board of health building in *Indianapolis, Ind.* . . . Contracts have been awarded for $470,000 of buildings and improvements at Purdue University, *Lafayette, Ind.* . . . University of Arizona, *Tucson,* will ask bids for $1,585,000 of buildings . . . Plans for a $400,000 hospital for *Perry County, Ind.,* have been approved . . . Massachusetts legislation is being prepared to permit construction of truck distribution terminals in Boston . . . Nickel Plate Railroad is to prepare plans for separations at seven grade crossings in *Fort Wayne, Ind.* . . . A $400,000 high school is to be built at *Princeville, Ill.* . . . Arkansas' $1,000,000 war memorial stadium will be built at *Little Rock* . . . Work is starting on a $5,250,000 refrigerated warehouse at *Dallas, Tex.* . . . Public Service Co. of Indiana is planning a $50,000,000 power generating station five miles north of *Terre Haute* . . . A $7,910,000 steam-electrical generating plant has just begun operation at *New Orleans, La.*—the first unit of a new $21,000,000 plant of New Orleans Public Service, Inc. . . . W. S. Bellows Construction Co. has a contract for a $1,000,000 addition to the Commerce Building at *Houston, Tex.*

Housing—Construction of 160 homes for veterans will be started soon at *Chattanooga, Tenn.,* by W. F. Osborne . . . At *St. John, N. B.,* 277 housing units will be built by Central Mortgage and Housing Corp. . . . Wartime Housing, Ltd. will build 300 houses in *Calgary, Alta.* In the same city Frostlev & Edwards have contracted to move 24 houses which are too near an oil refinery . . . A $2,000,000 housing development will be carried out at *North Hills, Pa.* . . . Pearce & Pearce will build a $2,000,000 development at *Tonawanda, N. Y.* . . . Jones-Atkinson Co. will build 500 homes in *Richland, Wash.* . . . Work is starting on a $3,500,000 rental-apartment in *Amherst, N. Y.* . . . A $1,000,000 housing project is being started at *Topeka, Kan.,* by Geo. B. Emery, Jr. . . . Fairfield Gardens is being built by Paul Livoli to house 308 families at *Waltham, Mass.*

Highways—Texas highway department now has a Division of Traffic Services for landscaping, traffic engineering, information, etc. . . . *Halifax, N. S.,* will borrow $1,000,000 for new streets and improvements . . . Under contract in *Nebraska* are federal aid projects of $13,093,525 . . . There is an approved road work program of $369,492 in *Cape May County, N. J.* . . . Bids are being received this month for $2,000,000 of farm-to-market highways in Missouri . . . Rieth-Riely Construction Co. has contract at $116,288 for two bridges on U. S. 30 bypass around *Fort Wayne, Ind.* . . . Secondary road improvements in 8 *New Jersey* counties are costing $1,000,000 . . . Under the 3-year federally-aided road program in *Tennessee* 1,200 miles costing $33,000,000 have been contracted for . . . Hunt and Patterson, Detroit, Mich., are preparing plans and specifications for the $850,000 vehicular bridge over Wabash River to connect *St. Francisville, Ill.,* with Indiana . . . *Indiana* State Highway Commission reports work in progress on highway contracts totaling $19,126,689.—481 miles of highways, construction of 60 bridges . . . Highway construction contracts awarded during the first seven months of 1947, by the *Kentucky* State Highway Department, exceed by nearly $1,000,000, those for the same period last year. Total contracts awarded to Aug. 1 amount to $15,407,000. They involve surfacing, resurfacing or new construction of 1,766 miles. During July, $2,326,000 worth of work put under contract, covering the improvement of 104 mi. . . . Contracts totaling slightly in excess of $2,500,000 were awarded by the *Louisiana* State Highway Department during July. This brings the department's total construction contracts awarded during the first seven months of this year, up to about $10,000,000.

Sewers and water supply—San Francisco will vote in November on a bond issue of $2,500,000 for a pipeline to increase High Sierra water to the Bay area . . . *Philadelphia, Pa.* has awarded $200,414 in two contracts for water mains . . . Lee Herring, health officer of *Grand Prairie, Tex.,* charges Fort Worth with dumping 17,000,000 gpd of raw sewage into Trinity River . . . *Taunton, Mass.,* has been held in contempt of court for failure to end pollution of the Taunton River . . . *Chichasha, Okla.,* will spend $1,000,000 to improve its water supply . . . A 10 percent increase in water rates goes into effect at *Annapolis, Md.,* Oct. 1. . . . *Jasper, Ga.,* has plans for 1,000,000 gal. reservoir . . . *Detroit, Mich.,* city council has voted a $10,000,000 a year sewer building program . . . *Camden, N. J.,* has received a certificate of necessity to continue its $9,000,000 intercepting sewer project.

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To Extend Pennsylvania Turnpike

Construction of an eastern extension to the Pennsylvania Turnpike from Middlesex, near Carlisle, to a point east of Paoli is expected to be started next year, Gov. James H. Duff reports.

This extension will greatly improve the highway connections between Philadelphia and Pittsburgh, providing additional miles of 4-lane, low-grade road, the Governor said. It is to be financed by private capital through a bond issue.

The eastern terminal of the toil road is being planned for the Paoli region in conjunction with a traffic survey in the Philadelphia area. The traffic flow of the superhighway will be released in the eastern area east of Paoli near the Lancaster Pike, Montgomery Avenue, Conshohocken Pike and the Doylestown-New Hope road so that traffic from the toll highway can be distributed to avert a bottleneck at the entrance to the turnpike.

The governor said gross earning of the turnpike are expected to exceed $500,000 this month, of which 60 per cent will be net profit.

"On the basis of current revenue, the new extensions will be both self-supporting and self-liquidating," he declared. "They will not require either subsidies or guarantees by the commonwealth for their construction."

"Upon completion of the surveys for the eastern extension, surveys will then immediately be made for the western extension from the present western terminus near Irwin to a point beyond Pittsburgh," the Chief Executive said. He predicted that work on the western extension to the Ohio state line may be started in 1949.

Other superhighways

Pennsylvania's participation in the National system of Interstate Highways calls for construction of six highways involving 1,322 miles of 4-lane road. It is said that the entire project within the state may require as long as ten years to complete since it will not take precedence over other road construction.

The six systems will branch out from Harrisburg to Pittsburgh, Scranton, Altoona—Easton, Reading, Philadelphia, and to Baltimore and Hagerstown, Md.

CONSTRUCTION LABOR ROUNDUP

Maine—Carpenters on strike for two weeks, tying up projects of 24 contractors in southwesetrn part of the state, settled their differences Aug. 13 when a 12½-cent-an-hour increase was granted . . . **Alabama**—New wage scale in Mobile also gives carpenters a 12½ cent-an-hour increase . . . **Missouri**—a 12½-an-hour increase has been granted to 1,300 members of AFL **Steamfitters** Union at St. Louis . . . **Washington, D. C.**—An immediate increase of 15 cents an hour with another 10 cents promised for Nov. 1 ended a 39-day strike of 550 AFL sheet metal workers . . . **Texas**—A statewide survey shows that wages in construction industry have increased from $18.30 a week in 1939 to $44 a week today . . . **Arkansas**—charges that the Ozark Dam Constructors are unfair in not hiring men under 21 on the Bull Shoals Dam; that the wage scale is too low; and that out of state labor is used on the project were made by representatives of the AFL who are planning to organize labor in the project . . . **New York**—Quick action by union leaders and employers in the construction industry in New York City last week promised to end a work stoppage which threatened to halt construction throughout the city. Members of Local 14 International Union of Operating Engineers, AFL, are seeking a 10 percent wage increase. Negotiations will continue with the men back at work.

Specially built dredge to desilt Colorado River

Looking toward permanent measures to correct the difficulties caused by silt deposits along the Colorado River below Hoover Dam, the Bureau of Reclamation has awarded a contract for for a specially-designed dredge which will be put to work cutting new channel sections, particularly in the vicinity of Needles and Topock, Calif.

The Bureau of Reclamation has awarded a contract for a dredge to the Pacific Coast Engineering Co., Alameda, Calif., on its low bid of $871,700. The contract calls for the furnishing and assembling of one suction dredge complete with fuel barge, pipe barge, and attendant power plant. The dredge will be about 40 ft. wide and from 120 to 140 ft. long with a draft of about 6 ft.

The dredging equipment will be designed to operate in the dense jungle of tules, willows, and other vegetation which has grown on silt deposits in the river. One of the dredge cutters must be capable of cutting through vegetation while a second cutter will be constructed for operation in sand and clay or gumbo.

About a year will be required by the contractor to construct and assemble the dredging equipment. Meanwhile, the Bureau of Reclamation will continue to carry out temporary remedial measures to protect the low-lying areas between Needles and Topock, Calif., and at other points on the river, from flood damage.

The control and regulation of the river is relatively a new phase of the bureau's program in the Colorado River basin. Congress has passed legislation assigning the bureau this responsibility and appropriated $1,000,000 for this program in the current fiscal year which ends June, 1948.

CONTRACTORS GET RAIN CHECKS

J. Stephen Watkins, Kentucky highway commissioner has promised leniency to a group of contractors who have failed to complete road contracts by specific dates because of frequent rains this summer.

W. O. Snyder, secretary of the Kentucky Association of Highway Contractors, told Watkins that between April 1 and Aug. 1 rain fell on 32 days in the Lexington area and 54 days in the Louisville area.

In Western Kentucky from 33 to 42 days were too wet for road work, Snyder said.

San Francisco building code is revised

After two years of controversy, the San Francisco, Calif., board of supervisors gave final approval last week to a revised building code. (*ENR*, June 26, vol. p. 992)

Director of Public Works Harry C. Vensano, proponent of the revision, assured engineers and builders opposing the code that it can "easily be amended" if it is "a real barrier to the erection of tall buildings."

He declared, however, that the lateral force requirements for additional steel framework would add only 1½ percent to the cost of a 32-story structure.

Engineers groups had termed the conditions of the new code "uneconomical and impractical," claiming that the cost of skyscrapers would be jumped so sharply that no more would be built.

Vensano said that he was forced to draft most of the new code, the first major change in the city's building regulations since 1912, because contractors, engineers and architects were in disagreement on so many points.

DEVELOPMENTS BEYOND U. S. BORDERS

Digested from reports by Engineering News-Record correspondents and the McGraw-Hill World News Bureau

India Plans Huge Highway Program—Power, irrigation projects announced in Australia, Iraq and India—British start work on $2,000,000 Tyne tunnel

India—Plans are going rapidly ahead in India for extensive highway construction but to carry out the program many problems remain to be solved, according to K. S. Raghavachary, deputy consulting highway engineer of the central government of India and leader of 21 Indian engineers now in the United States studying American roadbuilding methods under auspices of the Public Roads Administration.

Not the least of important problems are those pertaining to general policy and yet to be answered by the government now being organized to take over from the British, who are to leave India in about a year.

During the past 20 years, the government of India has been at work seeking ways to provide better roads for a country that has about half the area of the United States and three times the population. In November 1927, a special group known as the Jayakar committee was appointed. At that time India had less than 200,000 miles of roads, of which only 59,000 miles were hard surfaced. The committee made major recommendations regarding increased income for highway work and urged creation of a separate road department in the Indian central government. Many of these suggestions were followed and a central roads organization was established in 1930.

In December of 1943, the chief engineers of the various provinces and states at a major conference formulated a road program taking into account the expected traffic trends for the next 15 years. The Nagpur report that resulted from this conference now forms the basis for the long-term planning of road development in India.

Based upon the Nagpur plan a system of national highways has been established (see map). For these roads the central government assumes complete financial responsibility for both development and maintenance, which is in contrast to U. S. federal-aid work whereby the states supply 50 percent of the cost. Provincial or state highways were also established in accordance with the Nagpur plan, as were local roads.

Ten-year plan proposed

The Nagpur report outlined a 10-year construction plan. It called for a 75 percent increase of hard-surfaced roads from 68,000 to 120,000 miles, including 25,000 miles of national highways. Extension of low-type roads is increased by 26 percent or from 158,000 to 200,000 miles. With this plan, no village in the well developed agricultural areas is over five miles from a main highway, and the average distance is two miles. In non-agricultural rural areas all villages are within 20 miles of a good highway.

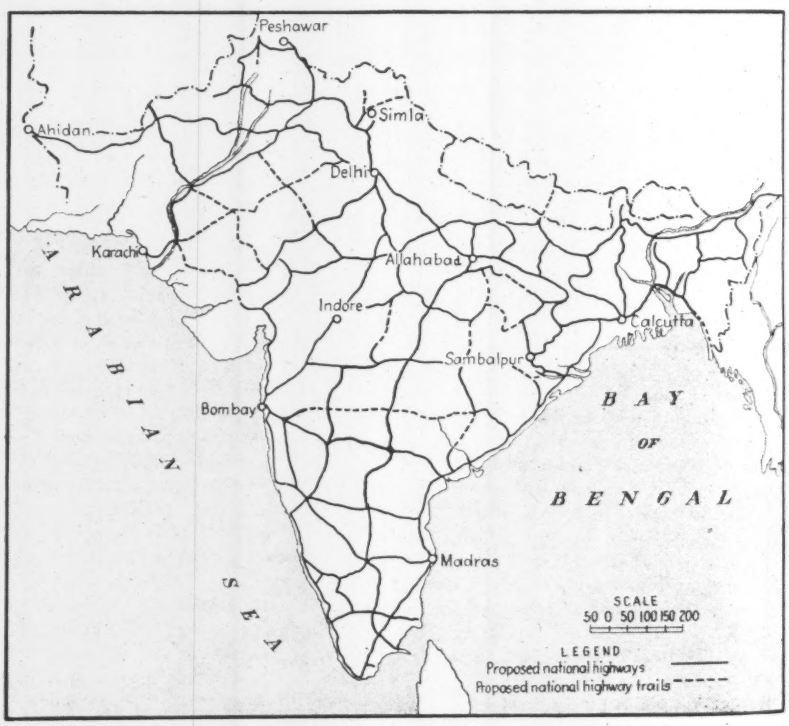
Adequate provision was made for the construction of many bridges, the lack of which has been a serious handicap to through highway travel in India. Acquisition of necessary right-of-way was also provided for.

In keeping with the Nagpur plan, work was begun on April 1, 1947, on a 5-year construction program. On that date the central government assumed complete financial liability for improving and maintaining all of the national highways in British India. Negotiations were also begun for construction of national routes across the 648 independent Indian states, which account for 45 percent of the area of the whole of India and 25 percent of the country's total population. However, financial conditions in India have necessitated scaling down of the national system of the Nagpur report from 25,000 to 18,400 miles.

Machinery has been established for technical coordination between the central and local governments and a central highway research institute is being established with about one million dollars appropriated for this purpose. Soil mechanics, which will play an important role in improving India's highways, will receive major attention by the institute.

Technical work goes ahead

A central standards and design office for roads has also been set up under about 30 consulting engineers to devise standards and specifications suitable for road development in India. This office



***Roads for India**—Indian engineers are fast completing plans for an extensive program to give India a network of all-weather highways.*

is working in close consultation with the provincial public works departments and the Indian Roads Congress, which is a non-government engineering association created in 1935 and having a membership of over 1,000 engineers. The congress is somewhat similar to the American Association of State Highway Officials. An Indian Standards Institute to aid in the development of highway standards has also been created.

One of the major problems of road-building in India is to construct economically a pavement requiring little maintenance when used extensively by steel-tired oxcarts, which number more than six million in British India alone, and fast-moving pneumatic-tired automobiles. Considerable research has begun on this problem, and on improving the oxcart to reduce its destructive effect on pavements and at the same time to permit a larger pay load. In addition to the considerable research in progress in India, a special project has been started by an Indian engineer at Iowa State College under the direction of Prof. R. A. Moyer.

However, all of the highway problems facing India are not engineering problems. Financing is a major task and the Constituent Assembly, which is now drafting a new constitution for India, will need to settle several major highway questions.

These questions include: (1) The future relation of the federal government to the provinces and the states in regard to highways; (2) what policies should be followed regarding federal aid for road construction and whether the matching principle should be applied; (3) what portion of the taxes levied on road users should be earmarked for highway construction; (4) what should be done in regard to the Nagpur road plan; (5) whether an independent statutory authority should be set up to administer highway planning and construction funds; and (6) whether highway travel should be controlled by an independent body similar to the U. S. Interstate Commerce Commission.

Provinces now get no aid

At present the provinces receive practically no federal assistance specifically earmarked for roads. Most gasoline taxes are collected by the central government, while the responsibility for constructing and maintaining most roads rests with the provinces. The only road user revenues the provinces secure are those from motor vehicle registrations, gasoline taxes in addition to the 30 cents per imperial gallon imposed by the central government, and a surcharge on land taxes. The total the provinces receive is less than 33 percent of that obtained by the central government from gasoline taxes.

Power, Irrigation . . .

Iraq—A commission of British engineers appointed by the government of Iraq last week had worked out a comprehensive plan of flood control, irrigation and agricultural development for the country.

The extensive plan proposed includes:

The damming up of a tributary of the Euphrates river in Kurdistan; the extension of the Habbaniya Project—diversion of water into Lake Habbaniya from where it is let out at the present time under control; the revival of an old plan to flood the great natural depression between the Tigris and Euphrates river at Wadi Tharthar.

Australia—The state of Western Australia this year will place under construction a project calling for the extension of the height of Mundaring Dam. Mundaring Dam was built 44 years ago to supply water through a 380-mile conduit to the Kalgoorlie gold fields. The dam was not designed to be raised, and is a concrete gravity overflow structure 100 ft. maximum height with a crest length of about 750 ft. Located on the Helena River, 28 miles from the city of Perth, the dam will be increased in height by 33 ft.

Tunnels . . .

England—A few weeks ago work started on the first two units of a triple tunnel under the River Tyne in England. Drawings herewith show general layout of this engineering project.

This project dates back to 1936 when the commissioner for the special areas concerned reported that improved facilities for crossing the Tyne were needed to assist in the full development of the Tyneside area, which is a rectangle extending 15 miles on each side of the river and 15 miles inland from the mouth of the stream. It contains the towns of Gateshead, Newcastle, South Shields, Sunderland, Tynemouth and Wall-send, with a total prewar population of 1,450,000.

The concentration here of coalfields, shipyards, engineering workshops, steelworks and docks involves heavy traffic across the river. At present this traffic is carried by ferries or on the steel arch bridge in Newcastle, making great traffic congestion in that city.

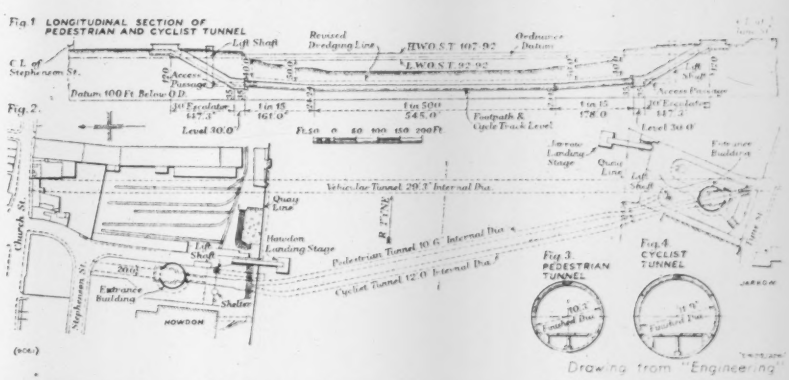
Of the three tunnels, one is for pedestrians and one for cyclists and the third for vehicles. Work is being started on the pedestrian and cyclist tunnels first and it will require two years to complete them. Work on the main vehicular tunnel will not begin until the two minor ones are finished.

Access to the small tunnels will be chiefly by escalators, but an elevator will also be provided.

The pedestrian tunnel will have an internal diameter of 10 ft. 3 in. while the cyclist's will be 11 ft. 9 in. Each will be lined with cast iron and finished with concrete and glazed tile.

The main vehicular tunnel is to have an internal diameter of 29 ft. 3 in. and the roadway will be 22 ft. wide. The approach roads will be 4 miles long.

The estimated cost of the whole project as presented to Parliament was about $14,400,000. The work is being undertaken by the Tyne Tunnel Joint Committee of the Durham and Northumberland County councils. The consulting engineers are Mott, Hay and Anderson, London, S. W. 1.



Drawing from "Engineering"

***To Relieve Tyneside Congestion**—Above are engineers' drawings of the $14,400,000 triple tunnels now being constructed under the River Tyne in England. First two tunnels are for pedestrians and cyclists. When they are completed in two years, work will start on the main vehicular tunnel. The tunnels to relieve one of the worst traffic bottlenecks in the United Kingdom.*

Large dam projects are beginning in various areas of U. S. and Canada

Allatoona and Clark Hill in Georgia, and Ottawa River dam in Canada under way, while work halts on Dillon and some others

Construction on Georgia's two giant multi-purpose electric power projects, Allatoona and Clark Hill dams, will go forward as the two main projects in the $50,000,000 civic works program for the South Atlantic Division of the Corps of Engineers.

Col. George W. Gillette, division engineer, said that $8,425,000 has been alloted for Allatoona and will be applied to the continuing contract for the concrete construction of a main portion of the dam. The $5,000,000 for Clark Hill will enable the Army Engineers to continue to contract for the construction of the main concrete dam.

Another major project is the Jim Woodruff Dam at the junction of the Chattahoochee and Flint rivers in Southwest Georgia which is the first step in the work on the Apalachicola River system. Contracts are soon to be let by Mobile District Engineer for the initial construction of the earth portion of the dam.

Atlanta believes that the $250,000 appropriation for studies and planning of the Buford Dam, 50 miles up the Chattahoochee River is an important step toward increasing its water supply.

The first concrete on a Missouri basin project was placed recently on the Bureau of Reclamation's Angostura Dam in southwestern South Dakota.

The Mobile District Engineer office has $300,000 to prepare a report for its portion on the Tennessee-Tombigbee River project. A report will also be prepared on the Alabama-Coosa River system to include multi-purpose dams on the Alabama River.

Large project in Canada

Immediate construction of another major water power development on the Ottawa River is announced by the Hydro Electric Power Commission of Ontario. The new plant will utilize the fall of the river at Chenaux Rapids, 10 miles from Renfrew, 60 miles west of Ottawa, where 160,000 hp. will be generated under a 50-ft. head at an estimated cost of $20,000,000. Works will include a large dam across the river, 3,000 ft. long and 60 ft. high. The plant will be built under the new agreement between the provinces of Ontario and Quebec for the development of the Ottawa River whereby the Ontario Hydro carries out the actual construction, in consultation with the Quebec Hydro organization, Ontario and Quebec workmen being employed on the respective sides of the interprovincial boundary.

The new plant will be built under contract since all Hydro construction forces are fully occupied on the Des Joachims, De Cew, Aquasaban and Stewartsville projects. The other recently announced Hydro project, near Sault Ste. Marie, will also be built by contract for the same reason. The Chenaux plant will be completed by 1951. The combined effect of the six new plants will be to increase the Hydro generating capacity by 50 per cent.

Dillon Dam work stopped

Army Engineers at Huntington, W. Va. have ordered Bates & Rogers, contracting firm at Zanesville, Ohio, to halt all construction work on the Dillon Dam, a flood control project near Zanesville. Lack of funds is given as the reason. It is understood that the Baltimore & Ohio Railway and subcontractors received similar notice.

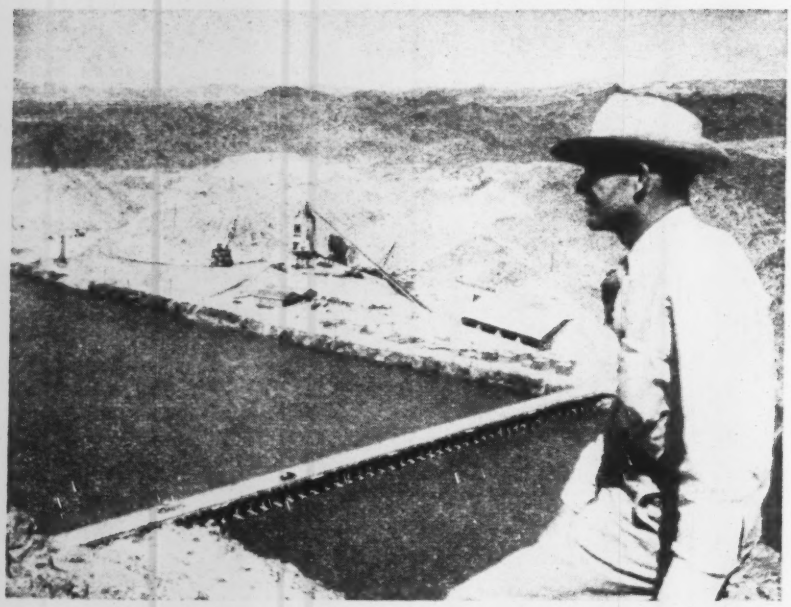
Work has been carried along for some time in the expectation that Congress would appropriate money in addition to the $2,000,000 recently approved. Engineers report that amount has been spent and overspent and indicate there will be no dam without more money.

Col. Howard V. Canan, United States Army district engineer, Louisville, Ky., has announced that work on Wolf Creek and Center Hill dams in the Cumberland River basin will have to be curtailed. He said the $8,000,000 appropriated for Wolf Creek will not enable the engineers to work on the reservoir area. Completion of the dam may be delayed two years, he said.

Raising Wilder Dam opposed

Governor Ernest W. Gibson of Vermont has applied to Senator Chapman Revercomb, chairman of the Senate Public Works Commission for a hearing on raising Wilder Dam to 385 ft. above sea level. Opponents of the plan claim the increased height would flood Connecticut Valley farms.

Governor Gibson is ready to go to Washington to support a resolution of Vermont's Senator Aiken to rescind FPC authorization. This is a relocation order following a Vermont Supreme Court decision ruling that the Public Service Commission has no jurisdiction over the dam operated by the New England Power Co., Wilder Dam holds back Connecticut River waters between New Hampshire and Vermont.



***View of Davis Dam Work**—James Seery, progress control officer for the Bureau of Reclamation on the Davis Dam in Arizona and Nevada just above the California line, views one of five bridges now spanning the Colorado River and the diversion channel at the dam site. A year ago only one bridge crossed the river.*

Under direction of the Corps of Engineers, excavation is underway to prepare a base for the $8,510,000 Narrows Dam on the Little Missouri River seven miles northwest of Murfreesboro, Ark. When the dam blocks the 941-ft. valley between two high bluffs and rises 185 ft. above the river bed, flood water that backs up behind the structure can be released slowly enough to control its flow into the Ouachita River 27 miles above Camden. The project will protect 93,000 acres of valley bottom land down-stream.

On Aug. 13, for the first time water coming down the Olentangy River flowed through the mammoth flood control dam now nearing completion north of Delaware, Ohio.

The Delaware reservoir is being built by the Army Engineers to control floods in the Ohio and Mississippi rivers, to provide a water supply for Delaware, to insure constant flow in the Olentangy through Columbus and to provide recreational facilities.

On Sept. 12 ground-breaking ceremonies for the Town Bluff Dam in Texas will be held. The dam will be an earthen one of 30 ft. in height and 6,780 ft. in length. It will impound 93,000 ac.ft. of water.

An appropriation of $1,300,000 by Congress which supplements a previous appropriation insures completion of the initial project. Upon the completion of the dam the lower Neches Valley Authority, has agreed to contribute $2,000,000 toward its cost.

Folsom Dam agreement

An early start on construction of the $45,000,000 multiple-purpose Folsom Dam on the American River about 20 miles above Sacramento, Calif., was seen after agreement by interested agencies on a structure with a 1,000,000-acre-foot capacity.

The agreement was reached at a one-day meeting in Sacramento of representatives of the Corps of Engineers, the Bureau of Reclamation and the state division of water resources.

A previous meeting broke up with the state representatives insisting that a 600,000-acre-foot structure was more feasible at this time.

A key point in getting agreement on the larger dam was the concession by the federal agencies that 400,000 acre feet, rather than 260,000, of the storage would be charged to flood control rather than irrigation and power. Construction costs for the latter type of storage must be repaid. Congress will be asked to provide funds.

The Corps of Engineers will handle construction and maintenance, with power and water distribution turned over to the Bureau of Reclamation.

Sand drains for LaGuardia Field

To rehabilitate sinking LaGuardia Field the Port of New York Authority, which recently took over New York City's airports, has started work on installation of an experimental pattern of vertical sand drains. Purpose of the drains is to expedite complete settlement of underlying silt to a point of stability in a year or two, rather than over an expected natural settlement period of perhaps 50 years.

A closed-end, 17 in. O.D. pipe is driven through 20 to 30 ft. of rubbish fill and then slides under the weight of the hammer an additional 60 ft. in liquid muck on which the fill was placed.

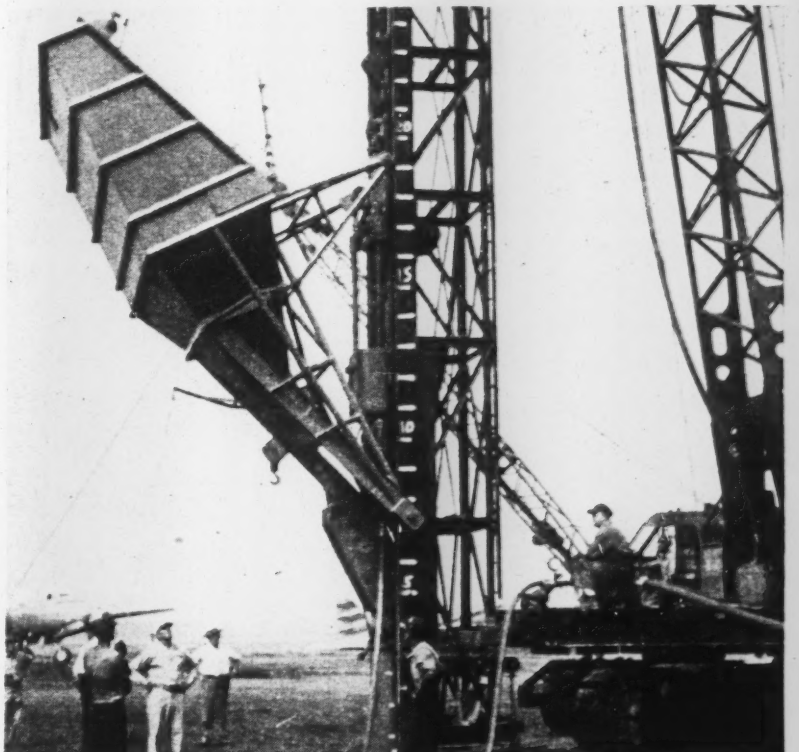
Sand is then dumped into the pipe and air pressure applied as the tube is withdrawn, forcing the sand out of the lower end of the pipe and thus forming a vertical column.

This sand is expected to serve as a wick (*ENR* Jan. 2, 1947, vol. p. 11, and March 6, 1947, vol. p. 386) to permit water to escape from the liquid muck and thus speed consolidation so that the field will become stabilized and can be repaved without fear of serious later settlement. A layer of sand will be added over the present surface of the field, to add weight to speed consolidation and to carry off the water forced out. This will become part of the fill necessary to replace the expected total settlement of some 9 to 12 ft. that might eventually occur.

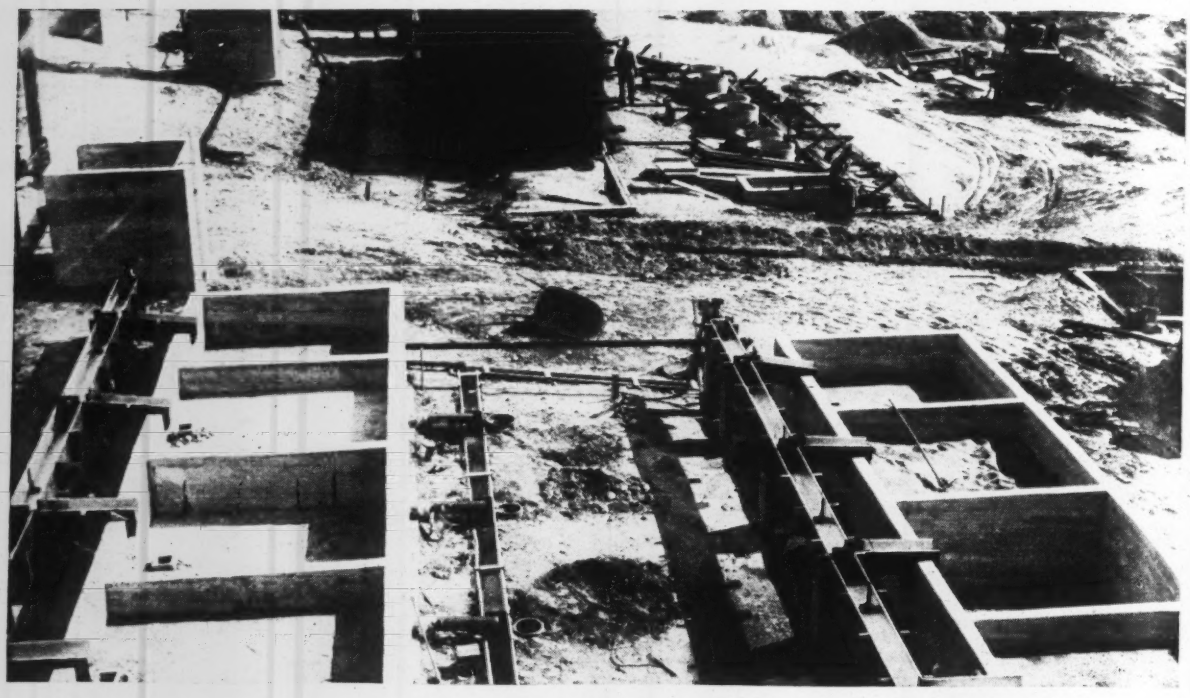
The work under way at present is placing of some 250 vertical drains in an 8, 11 and 14 ft. pattern each way to determine what is necessary for the complete program, which is expected to require some 30,000 vertical drains.

It is expected that as many as 40 drains per day will be installed as the techniques become established. The 250-pile test program probably will be completed by November. Full information on installation is being kept, to be made available to bidders on the overall project which probably will be let to contract next spring.

A consulting board, consisting of Frederic R. Harris, chairman, W. H. Mueser (both of New York) and O. J. Porter of Sacramento are assisting the Port Authority engineers, under J. P. Evans, chief engineer, in supervision of the project. The present test work is being done by J. Rich Steers Inc., on a fee basis.



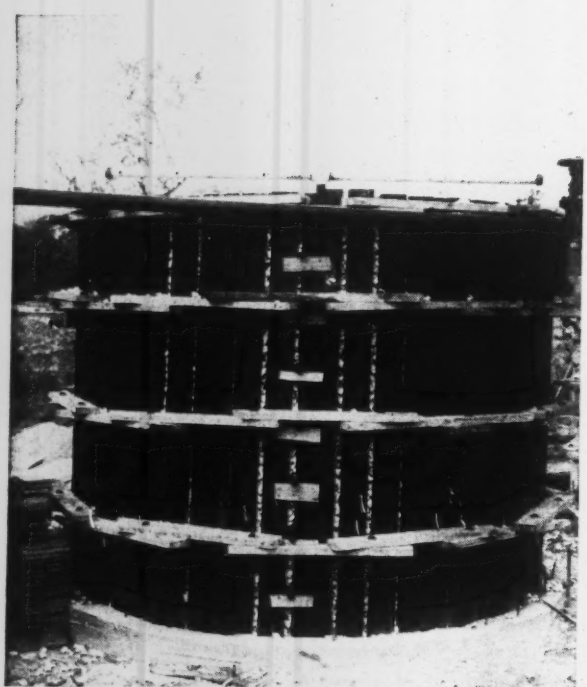
***Movable Hopper Fills Sand Drain**—At La Guardia Field sand for drains in the shape of a vertical pile is fed into driven 17-in. OD pipe casing by transfer hopper, which is adjustable to any height.*



A full scale testing laboratory handling waste from the school buildings operates at the University of Florida

School tests sewerage for Florida towns

D. L. Emerson, Jr.
Assistant Professor of Sanitary Science
University of Florida



Circular trickling filters *are part of the experimental equipment. Coarse aggregates, readily available in Florida are under study.*

RECOGNIZING the need for intensive research into problems of sewage disposal imposed by the warm, humid climate and scarcity of native materials in Florida, the University of Florida now is operating a full-scale testing laboratory at its engineering and industrial experiment station at Gainesville.

Intended primarily to relieve the overloaded existing campus disposal plant of the additional burden of sewage from a new campus housing project, the plant was at the same time developed for sanitary research, and will be used both by students and for research projects for Florida communities.

Sanitary engineers of the state have long recognized these principal problems: (1) The virtual absence of large surface streams for dilution of effluents, and the correspondingly extensive underground water systems that receive, directly or indirectly, the wastes of communities and industry; (2) the almost uniform flat topography that necessitates devices capable of operating under low-head losses: the scarcity of the usual materials such as suitable sand, or stone, for filter media; and (3) the general lack of sewerage and sewage systems in the smaller communities, due to high initial and operating costs.

The physical framework of the university's research

program is a completely equipped laboratory and an outdoor pilot plant, designed for individual study of unit processes.

In order to overcome normal limitations imposed by small scale or laboratory-size process studies, and to develop information that may be directly transferable to field operations, laboratory studies on sewage treatment were concluded more than a year before steps were taken toward construction of the existing pilot plant.

The pilot plant is so integrated with the main campus system that, while assuming its intended share of the sewage treatment program, its research function is not subordinated to the exigencies of variable seasonal loadings or other uncontrolled variables that characterize the average municipal plant.

At present, the installation consists of 30 highly integrated sewage treatment units of model proportions. The layout covers about one acre, and includes a control laboratory building with about 1,800 sq. ft. of floor space. Present design capacity, utilizing two primary treatment units, is 60,000 gpd., and a third unit, with a capacity of 30,000 gpd. is planned.

Two sources

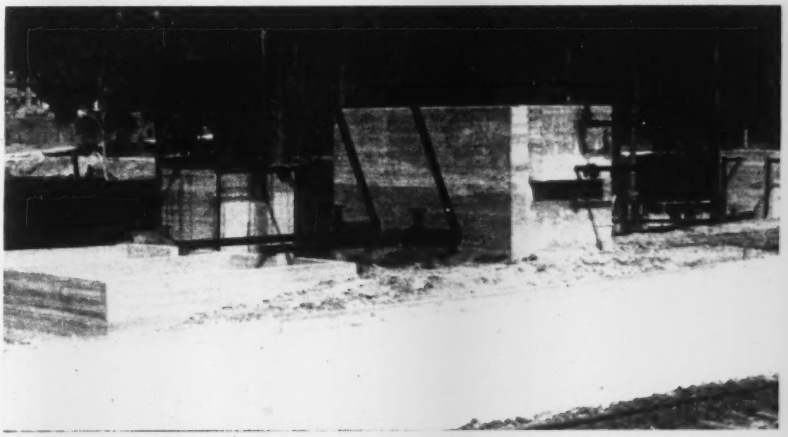
Sewage may enter the lift station from two sources — the veteran-student campus village (containing 69 families) or a line tapping the main campus sewer. Provisions have been made for using sewage from either source or an admixture of the two. Entering the stations, sewage is screened by a mechanically-cleaned vertical bar screen, equipped with a grinder discharging into the effluent side. Then it is elevated by means of pumps to a measuring and diversion tank, for distribution.

Other units of the laboratory include: A steel constant-head tank which feeds three one-foot-width flumes leading to primary treatment units; a model rectangular primary sedimentation tank of 30,000 gpd. capacity with a detention period equivalent to two hours; a model Imhoff Tank; measuring tanks for dosing secondary units; intermittent sand filters; trickling filters; digesters; a chlorine contact tank; and sludge drying beds.

Among unique features of the plant are: location on a spur railroad track making possible transfer of industrial waste in tank-car quantities to the plant for separate or combined treatment studies; the "sewage composition" variable has been eliminated since all units under study my receive exactly the same composition of sewage; arrangement is such that any secondary unit may receive effluent from any primary unit, any other secondary unit or may be bypassed entirely; plant units are large enough to duplicate prototype conditions; and sufficient heads have been allowed for future installation of various pre-treatment, intermediate, or post-treatment units.

The ultimate objective of the research program is to develop fundamental information on, and determine the relative merits and economy of, sewage and industrial waste treatment employing conventional and modified primary and secondary treatment processes under Florida's semi-tropical conditions.

The pilot plant and its research facilities were designed by the author and constructed by the Civil Engineering Department, under the supervision of Prof. C. D. Williams. Construction funds were made avilable from state building funds, on the recommendation of the Florida Improvement Commission, and its director, C. H. Overman.



An Imhoff tank, *sludge beds and measuring and constant head tank are also utilized. The equipment works on actual effluent from the university's buildings and from a veteran-students' housing project on the campus.*

Laboratory operations *are controlled from this building, which also contains a measuring tank for raw sewage. Laboratory equipment is supplemented by the full-scale operations proceeding in the outdoor pilot treatment plant.*

Sign $12.7 million pact for atom-city operation

The signing of a three and a half year contract with the Atomic Energy Commission for the continuance of the Roane-Anderson Co. as general operating contractor for the City of Oak Ridge, Tenn., was announced recently. Expenditures covered under the contract would be about $12,761,000.

Under the extension, the Roane-Anderson Co. will continue to manage, operate and maintain (with the exception of restricted production areas) the facilities, utilities, roads, services and properties of the Clinton Engineer Works, a 59,000 acre government reservation near Knoxville, Tenn. The company, named for the two Tennessee counties in which the Clinton Works is located, is a subsidiary of the Turner Construction Co. of New York City.

HIGHLIGHTS OF MUNICIPAL DEVELOPMENTS

Summarizing current activities in city engineering and construction throughout the country.

Ohio cities are not taking advantage of new off-street parking law as they believe it is unworkable—Milwaukee Sewage Works sells fertilizer—Tucson gets surplus airport

None of Ohio's major cities is making any plans to take advantage of the recently-enacted off-street parking law passed by the legislature, intended to relieve traffic conditions of municipalities. The law does not become operative until Sept. 27, but even when passed it was branded as unworkable, inadequate, and probably unconstitutional. The measure authorizes municipalities to acquire and improve land for off-street parking facilities, and sell such property, within two years after it is acquired, to private interests, with such sale conditioned on the property being used for parking not less than five years nor more than 25 years. The law exempts from condemnation any property owned or leased by a public utility or railroad or already being used as off-street parking facilities open to the public. It further specifically provides that it does not authorize a municipality to acquire by purchase or otherwise any property now being used for parking purposes.

The city of Cleveland plans a new downtown parking lot to be municipally owned and controlled, in spite of the new law that provides that cities may not operate such lots. The Cleveland lot will be established on land that is being obtained for the city's bridge and freeway extension program. Until the land is needed for these developments, it will be used for parking.

No plans are under way in Cincinnati, though the City Planning Commission may make a survey of the parking situation soon. Akron's Mayor Charles E. Slusser intends to call a conference of city planning and highway engineers to discuss solution of the off-street parking problem. In Columbus, Mayor James A. Rhodes objected to the law because it permits parking lots to operate without municipal control or regulation. Similarly, little is being done by Dayton, Toledo, and Youngstown officials, with respect to the new law.

As originally introduced, the state parking measure would have permitted municipalities not only to acquire land for off-street parking, but also allowed them to sell or lease such facilities, or to contract with private individuals or firms for their operation, and would in addition establish rates to be charged and regulations governing their operation and use.

Milwaukee sells sludge

While other cities grapple with costly sewage disposal problems, Milwaukee, Wis., for years has been making its sewage disposal plant pay much of its own way.

Using an activated sludge process, Milwaukee has since 1938 been selling the fertilizer by-product of this process under the name of Milorganite. It has at the same time kept its shoreline waters and rivers free from the pollution which results from ordinary dumping of sewage.

In 1946, the cost of operating Milwaukee's large sewage disposal plant came to $1,988,000. The Metropolitan Sewage Commission, which operates the system, reported Milorganite sales totaling $1,284,000. This left a deficit of $640,000 to be met by taxes levied against a metropolitan area of 750,000 population or about 80 cents per person.

The effluent which is piped into Lake Michigan after the fertilizer is extracted is 95 per cent free of bacteria and 92 per cent free of suspended solids.

Tucson's surplus airport

Sale of a surplus airport and modification center to Tucson, Ariz. for $100,000 has been announced by War Assets Administration.

Property involved in the transaction included 1,749 acres of land which had been leased by WAA from the city. This was returned to Tucson by cancellation of the lease.

Included in the sale are three hangars, a fire and crash truck station, control tower, field operations structure, three reservoirs, a warehouse, and welding, salvage, heat treatment and more than 20 other facilities needed in airport operations.

***Ten-Acre Pier**—Said to be one of the largest of its type ever built, a $6,000,000, 10-acre pier, supported on 5400 precast concrete piles and with a concrete deck, is now nearing completion for the Norfolk and Western Railway at Norfolk, Va. The pier is a part of a development that includes a 280-car supporting yard, and is 390 ft. wide by 1,100 ft. long. It will be equipped with two 15-ton revolving cranes to transfer cargo from ships to freight cars. The pier is being built by McLean Contracting Co., of Baltimore, under direction of W. P. Wiltsee, railroad chief engineer.*

Turkey's Need For Engineers

The writer of these notes recently spent five weeks in Turkey on a special assignment relating to the study of design and construction for a projected harbor on the Black Sea coast. While engaged in preliminary work on this project, he was able to make observations and gather information which will be of interest to fellow engineers.

Turkey, for centuries a great military and naval power that at one time ruled over half the Mediterranean shore, emerged from World War 1 shorn of all its provinces except Asia Minor and a small area on the European side of the Sea of Marmora. In the 27 years since that disaster, by dint of accelerated scholarship programs, the nation has succeeded in partially filling its own need for skilled engineering talent in some lines, but it will continue to need outside engineering aid in many others for years to come.

The ravages of the war and the long interval of internal and external conflict, following the armistice of 1918, left Turkey's economy in chaos. Not until the emergence in 1920 of Mustafa Kemal Pasha—considered by most Turks as a genius and leader comparable to George Washington—did a new era begin for the country. Kemal Pasha, a man of broad vision and intense patriotism, set about rebuilding his country, and succeeded in making it one of the most enlightened, productive nations of the world. His success, to an outsider, appears to be nothing short of miraculous.

Kemal Pasha's basic program for Turkey's reconstruction involved changing a primarily agricultural country into one which could satisfy at least a substantial portion of its own industrial needs. The fact that Turkey possessed considerable mineral wealth—including large deposits of coal and iron, copper, chromium and other ores—was well known. This wealth, however, had been exploited for more than a century by foreign capital—chiefly British, French, German and Belgian—on a concession basis and without much regard for the best interests of Turkey itself.

Drawbacks of foreign ownership

The same situation prevailed in the field of transportation. Railroads were built to answer the individual need or political requirements of the concessionaires. The various ores mined were exported from the country without any effort being made for their reduction and manufacture into finished products in Turkey. Other industries, such as cotton and silk spinning mills, cement mills, public service companies, etc., were similarly owned and operated by foreigners.

All these foreign concessions were recaptured, and promptly turned over to state monopolies for operation and further development. The change-over was accomplished by legal means, without international complications.

To remedy what many considered to be the greatest difficulty—scarcity of trained men of Turkish nationality needed for the rehabilitation, extension, coordination and operation of these foreign enterprises—the government at first made all efforts to retain in its service such employees of foreign corporations as were competent and whose loyalty could be depended upon.

At the same time, the engineering department of Istanbul University was greatly extended; a state university was established at Ankara, the new capital city, and students were encouraged to attend Robert College—the famous American institution—at Istanbul. Interestingly, one of the professors at Robert at that time was Dr. Karl Terzaghi, now of Harvard.

In addition, hundreds of promising young men were sent abroad by the government to study at recognized colleges in Germany, France, England and the United States. Now, after more than 20 years, the problem of technical personnel is practically solved.

The success of the economic policy laid down by Kemal Pasha and strictly followed by his successors required a master plan worked out by the various governmental departments to correlate the problems of production, industrial and commercial activities and similar matters. Such a plan—at least in general outline—has been in existence for some time and covers such items as coal and ore mining, metal manufacturing, textiles, power development, irrigation, soil rehabilitation, and rail, highway, water and air transportation, etc.

In order to avoid the sluggishness inherent in all governmental control of business activities, the monopolies created, (except those operated by specific bureaus such as the Turkish National Railways) were turned over to two government-owned banks for exploitation. These banks act as semi-independent agencies. They are the "Eti" Bank in which is vested the country's mineral resources, and the "Sumner" Bank, which handles industrial monopolies.

Each bank has established an engineering organization for planning and executing the necessary construction, and an operating organization. Selection of expert consultants is done with the greatest care. No engineer, except one having an international reputation in his field, can hope to be appointed as advisor, or to be engaged for the design of important work being considered. The engineering profession in Turkey deserves the highest commendation for its unselfish acceptance of expert advice in matters where Turkish engineers believe that they have not sufficient experience.

Turks self-sufficient in railroading

After a brief observation, it is the writer's opinion that the Turks do not need outside help in steam railroad engineering and in construction work. The 250-mile railroad line between Ankara and Zanguldak, for example, passes over most difficult terrain and was located, designed and built by Turkish engineers about 15 years ago. This rail line, one of the few constructed since the re-birth of the country, compares favorably with American railroads constructed in the last decades of the 19th Century—that is to say before the advent of modern earth-moving machinery.

However, at least to American eyes, there are few highways in Turkey worth the name. The building of roads to accommodate the growing automobile and motor truck traffic is one of the most urgent problems.

The writer has no doubt that by the time money becomes available for the construction of new highway systems, there will be a competent staff of Turkish engineers on hand to carry out the design and execution of the work. This also applies to the engineering of structures for highways and railroads and for building construction, except, perhaps, large bridges, viaducts, and industrial plants.

In almost all other lines of engineering, however, lack of experience in Turkey requires that outside help be engaged for at least the first step. Taken in the order of the reconstruction program, the fields where outside help will be required are:

1.) Development of economical coal and ore mining; 2.) Hydro-electric and thermal power development; 3.) Development of power transmission nets; 4.) Construction of plants for basic industries; 5.) Flood control and soil conservation; 6.) Irrigation; 7.) Harbor developments.

MEN AND JOBS

H. St. G. T. Carmichael, Jr., for the last year chief engineer with a construction firm on Army base installations in the Philippine Islands, formerly first assistant chief highway engineer for the Kentucky Department of Highways has returned to his old position to co-ordinate a survey for a long-range program of road development and maintenance. He obtained his degree in civil engineering at Virginia Military Institute and was graduated in 1929 from Harvard University in business administration.

Charles Flint, 58, a graduate of Toronto University, 1910; and recently engineer in charge of construction Canadian Pacific Railroad, Winnipeg, Man., has been appointed superintendent of Construction, Department of Transport, Ottawa. In Flint was the successful applicant following a Dominion-wide competition by the Civil Service Commission.

Anthony Gull Jr., grandson of the founder of the Gull Construction Co., poses with Samuel Paxton, motor vehicle superintendent on the Manhattan approach to the Brooklyn-Battery Tunnel in New York City.

Col. Albert G. Matthews, 51, of Sarasota, Fla., has been appointed chief engineer in charge of the water conservation study program authorized by the 1947 state legislature. Colonel Matthews is a West Point graduate and retired last October from the Corps of Engineers of the U. S. Army.

Army Engineers appointments of **Col. James G. Truitt** as executive officer of the Missouri River Division office and of **Col. Louis W. Prentiss** as Omaha district engineer have been announced by Brig. Gen. Lewis A. Pick, division engineer.

Colonel Truitt, who served with General Pick in the CBI theater on the Ledo Road, has been acting deputy division engineer since his return from overseas in July, 1946.

He was operations officer in the Omaha district office in 1935 and 1936, and served in the European theater during the war. In July, 1946, he was appointed deputy chief engineer in the European theater, and acting chief in August, 1946. He returned to the States in June of this year.

Colonel Truitt and Colonel Prentiss succeed **Lieut. Col. Stanley G. Reiff** and **Lieut. Col. Delbert B. Freedman,** respectively. Both of the latter men have been assigned to duty at Yokohama, effective early in September.

W. S. Shriver has won his battle for the job of Belmont County engineer in the Ohio Supreme Court. His fight grew out of a vacancy occuring in the office Sept. 30, 1946, more than 30 days prior to the next general election. The Belmont County election board failed to include the office for the unexpired term, ending in January, 1949, but 50 write-in votes were cast for Shriver at the Nov. 5 election. The commissioners, however, appointed Lawrence Hayes as county engineer Nov. 7 then, on Dec. 3, the Election Board certified the election of Shriver and the governor issued his commission.

Col. D. W. Griffiths, Galveston, Tex., district Army engineer since July 1946, has been relieved from duty to fill an important overseas post. Col. Henry Hutchings, Jr., Dallas division Army engineer, Southwestern division, said the Galveston district engineer post will be filled by Col. Bernard L. Robinson. Pending his arrival, Lt. Col. Joe A. Clema will serve as temporary district engineer.

George Mason Spear, of Anderson, S. C., has been elected superintendent and engineer of the Abbeville, S. C., water and light plant.

C. A. Willson has been appointed research engineer of the Committee on Reinforced Concrete Research, American Iron and Steel Institute, New York. He fills the vacancy created by the recent death of Roy Zipprodt. For 19 years Mr. Willson, a 1921 graduate of the University of Wisconsin, served as structural engineer for the state architect of Wisconsin, followed by service with governmental agencies. In 1942-44 he was in charge of the structural materials branch of the conservation division of the War Production Board. In 1944-46 he was in charge of the clay and concrete products division, and

George W. Ryan (left), supervising construction engineer for New York State; Everett Sargent, superintendent of grading, and W. S. Bell, superintendent of bridges for S. J. Groves and Sons Co., contractors; Fred M. Douglas, state resident engineer and L. J. Klock, contractor's project manager, are supervising construction of a section of New York State's Thruway.

John E. Byrne, president and board chairman of the Byrne Organization, and Frank R. Creedon, housing expediter, discuss construction of 1,200 steel-frame homes south of Baltimore, Md.

from July, 1946, to July, 1947, he was director of the building regulations and construction standards branch of the National Housing Agency.

Howard E. Robbins has been appointed acting director of Region 5, Amarillo, Tex., Bureau of Reclamation, replacing **W. R. Nelson**, now assistant commissioner in Washington, D. C. Mr. Robbins, one of the men who worked on the design of Hoover Dam, came up through the Reclamation ranks, holding various surveying, designing and construction engineering positions since joining the Bureau as a laborer in 1916.

O. W. Edwards has left the Kentucky Department of Highways to become a member of Corum & Edwards, Madisonville, Ky. He started with the department in 1923 and has served as chairman, rodman, levelman, instrument man, junior engineer, resident engineer, chief of party, district engineer, engineer of special assignments, and finally assistant director of construction.

E. M. Fleming, district manager of the New York District of the Portland Cement Association, has announced the appointment of Thomas L. Kelly, as structural field engineer for Western New York with headquarters in Buffalo, effective September 1st. Mr. Kelly is a graduate of the New York University College of Engineering where he specialized in structural engineering and served for two and a half years with the U. S. Navy Seabees in the Pacific as engineering officer and company commander with a construction battalion. Prior to the war he was associated with several New York consulting engineering firms on structural design. Mr. Kelly has been with the Portland Cement Association since December 1946.

James C. Vosburgh, Sr., vice president of the Chicago Bridge & Iron Co., has been transferred to Chicago from the Los Angeles office to become president of the Guardite Corp., an affiliate. Mr. Vosburgh was in charge of the company's Washington office from 1940 until 1946, when he moved to the Los Angeles office.

Reed McKinley, director of public works at Kansas City, Mo., has appointed **John Klemm** as temporary superintendent of the sewer construction work until the city council can create the department and confirm the appointment. The large increase in sewer construction necessitated this action. Mr. Klemm, an engineer, has long been connected with the engineering department.

Quinton Engineers, Ltd., Los Angeles, has announced that **Jack N. Sparling** has joined the staff as chief structural engineer. He formerly held a similar position with J. Gordon Trumbull, Inc., Cleveland, Ohio.

John Daly has taken over the duties of city engineer and maintenance superintendent at Cut Bank, Mont., succeeding F. A. Daley, who retired, and John Monroe, who resigned.

Calvin V. Davis, former principal planning engineer for TVA, has been assigned to go to Argentina as advisor to the Peron government in its 5-year program of hydro-electric development. He will be in charge of designing two dams to cost more than $30,000,000 each. Mr. Davis recently resigned as southern manager at Knoxville for Frederick R. Harris Engineering Corp.

William H. Mills, president of the Mills and Jones Construction Co. of St. Petersburg, Fla., has been named a member of the St. Petersburg Port Authority which will soon undertake the construction of a $15,000,000 bridge-causeway across lower Tampa Bay. Mills, at 35, is the youngest member. He is a graduate of Massachusetts Institute of Technology and has been in the construction business for 10 years.

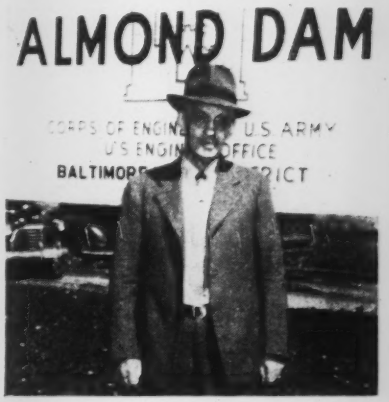
Stanley Pinel has resigned as director of public services for St. Petersburg, Fla., to go with a private civil engineering firm for work in U. S. and South America. A civil engineering graduate of the University of Michigan, with post-graduate work at the University of Chicago, he has been active in the public works field for 25 years. Before going to St. Petersburg two years ago, he was director of research for the Public Works Association of Chicago. He served as an engineer with the Federal Works Administration in Washington during the war.

O. W. Martin, senior civil engineer, has been named director of surveys, Department of Highways, Regina, Sask.

Retired Adm. Husband E. Kimmel, commander of the U. S. Pacific fleet at the time of the Pearl Harbor attack, has been named southern manager of the Frederick R. Harris Engineering Corp. of New York. The former commander will share his time between Knoxville, Ga., and Atlanta, Ga., where the firm's southern offices are located.

I. C. Steele has been named vice-president in charge of engineering for the Pacific Gas and Electric Co., to direct a recently announced $300,000,000 expansion program on the West Coast. He has been with the company 38 years.

A. H. Downs, general superintendent; C. E. Trout, manager, and A. K. Burnham, division engineer for the Great Lakes Dredge and Dock Co., take a busman's holiday aboard the Army's powerful dredge "Goethals".



Don Mather, resident engineer for the Corps of Engineers, stands beside a sign that tells the whole story of a $4,000,000 flood control dam on Canacadea Creek, near Hornell, N. Y. This is only one of several such projects that the Corps of Engineers is supervising in the East.

ENGINEERING SCHOOL NEWS

Professor G. E. Large heads civil engineering at Ohio State—2,440 at Illinois Tech summer session—Iowa grads have many job opportunities—Special rating form at Columbia

Prof. George E. Large has been appointed chairman of the department of civil engineering, Ohio State University. He succeeds Professor Clyde T. Morris who has reached the retirement age. Upon graduation from the University of Washington, department of civil engineering, in 1922, Professor Large was for a time engaged in toll telephone surveying work in the Cascade Mountains. Following one year in the department of engineering drawings at Ohio State University, he became an assistant production engineer at The Buckeye Steel Castings Co., Columbus, Ohio, principally on statically indeterminate stress analysis and design, including structural model work. Returning to Ohio State in 1929 as assistant professor in civil engineering, he was also for nine years structural research engineer in the Engineering Experiment Station, supervising the A.I.S.C. wind bent research, and other projects.

Professor Large is the author of several station bulletins on structural research and a forthcoming problem-type text on reinforced concrete design. He is currently collaborating with Professor Morris on a research to evaluate the plastic stresses in reinforced concrete beams.

The $670,000 Evansville, Ind., College engineering-science building is expected to be completed in time for the fall semester.

The summer session, Illinois Institute of Technology, Chicago, had a record enrollment of 2,440, according to an announcement by William E. Kelly, registrar.

New science and engineering buildings are included in a $3 million construction program for Southern Methodist University, Dallas, Tex. Work is expected to begin in a few months on the engineering building, a 3-story structure. That on the chemistry building, a $2 million air-conditioned unit designed to house the physical science laboratories and classes, probably will be delayed for several months.

The Canadian Department of Labor has completed a preliminary survey of the employment opportunities for engineering graduates of Canada's universities during the next five years. It is estimated that there will be 9,450 jobs open during the period, based on full employment. The universities estimate that 12,885 students will be graduated in the various branches of engineering between 1947 and 1951. A 15% allowance is made for emigration and for those who will not go into engineering. The bureau estimates that 11,000 would be seeking jobs in the engineering field.

McGill University, Montreal, has appointed Joseph L. DeStein, assistant professor of civil engineering and V. W. G. Wilson, assistant professor of civil engineering and superintendent of the testing laboratory.

W. C. Huntington, head of the department of civil engineering at the University of Illinois, was recently awarded the honorary degree of Doctor of Science by his alma mater, the University of Colorado. Professor Huntington was graduated in civil engineering there in 1910, and was subsequently awarded the degrees of Master of Science and Civil Engineer. He taught in the department of civil engineering at Colorado, becoming head of the department in 1919. He went to the University of Illinois in 1926 in his present capacity.

A group of 16 University of Illinois students is engaged in making a map of Allerton Park, the 6,000-acre estate presented to the University by Robert Allerton. The students work Mondays through Thursday in the survey and spend Fridays and Saturdays on the campus compiling results. Prof. George H. Dell, assisted by Prof. Charles S. Danner, is in charge of the work.

Charles E. Friley, president, Iowa State College, Ames, has announced the re-naming of Engineering Hall as Anson Marston Hall in honor of Anson Marston, dean emeritus of the division of engineering, who headed the division for 28 years, having retired in 1932 at the age of 65 to teach in the division and do research work. Marion B. Richardson has been appointed as assistant professor of general engineering, effective Sept. 16. Richardson is being discharged from the Army Engineers. He served as a lieutenant colonel in the Pacific area. He has taught at Pratt Institute, Brooklyn, N. Y.

The 450 September graduates in engineering at Iowa State College have been offered 800 jobs, L. R. Hillyard, engineering personnel officer at the college, says. He added that 208 commercial companies have conducted 3,475 interviews at the college.

The $150,000 engineering shop laboratory under construction on the University of Houston, Tex., campus will be opened to students by mid-September W. W. Kemmerer, assistant to the president, has announced. Funds for new building were contributed by Mr. and Mrs. H. R. Cullen, of Houston. Courses in hydraulics, metallurgy, heat treatment, electricity, air conditioning, materials testing, petroleum and chemical engineering will be offered. The building is of steel and concrete.

The Columbia University school of engineering will broaden its method of judging a student's ability and progress through the use of scholastic records. In September it will begin use of a special rating form expected to give a check on personal qualities. The plan is to encourage the student in the "development of good habits in personal relations and in the further development of favorable characteristics."

Howard J. Hansen, who served as associate professor in charge of hydraulics and hydrology in the University of Florida's civil engineering department during the last year, has been promoted to professor of mechanics and acting head of the industrial engineering department. Professor Hansen had been a faculty member at Tulane University and A. and M. College of Texas before joining the University of Florida staff. He is an authority on timber structures and plywood. He is chairman of the ASCE committee on timber structures. He received his B.S.C.E. and C.E. degrees from Purdue University and Tulane University respectively.

OBITUARY

George W. Kittredge, 90, former chief engineer of the New York Central Railroad System for 36 years died at Yonkers, N. Y., Aug. 22. Graduated from the Massachusetts Institute of Technology in 1877, he was employed as a civil engineer for the Pennsylvania Railroad, west of Pittsburgh, for ten years and at that time was a consultant for the Louisville Bridge Co. He was promoted to engineer in charge of maintenance-of-way before leaving the Pennsylvania to join the Cleveland, Cincinnati & St. Louis.

Joining the New York Central System as assistant chief engineer of the Big Four branch in charge of maintenance-of-way at Cincinnati in 1890, Mr. Kittredge was promoted to chief engineer the next year. He was made chief engineer of the system in 1906, and had a part in planning the present Grand Central terminal. He also aided in the elimination of the tracks along the west side of Manhattan; the electrification of the Hudson division to Croton and of the Harlem division to North White Plains. Mr. Kittredge retired in 1927.

Walter G. Harrington, 59, founder and president since 1928 of the Good Roads Machinery Co., New York, died Aug. 19 in Port Chester, N. Y. He was a civil engineering graduate of Brown University, 1911.

Hiram E. Bryan, 56, former deputy city engineer of Rochester, N. Y., died recently. Mr. Bryan retired in 1942 after 33 years of continuous service in the city engineering department. In 1924 he headed a project for remapping and resurveying the city as a basis for establishing a scientific assessment system. He also established a precise horizontal control survey of the city and environs. He was a captain in the Corps of Engineers, New York Guard, and regimental engineering officer of the 21st Regiment.

Luther Roberts Nash, 76, Ridgefield, Conn., consulting construction engineer and public utility expert died August 9. He was graduated from Massachusetts Institute of Technology and Harvard University. He begun with Stone & Webster, Engineers at Boston, Mass., in 1895. He served as design and construction engineer until 1904, as manager of public utilities through 1908 and as an appraisal engineer and rate expert until 1919. In 1932 he was elected vice-president of the company in charge of appraisals and rate investigations.

Wesley O. Pease, 58, superintendent of streets for Dayton, Ohio, died Aug. 13 in Dayton. He had served as engineer for Montgomery County from June, 1922, to January, 1933. Between his retirement as county engineer and his joining the city he had been with the state highway department at Middletown.

Edwin F. Monahan, 59, projects engineer for the Federal Public Housing Authority in charge of construction at Shanks Village, N. Y., died in Hackensack, N. J., Aug. 20.

Charles Henry Pozer, 57, resident civil engineer for the Southern Railway, who helped to construct the Grand Trunk Pacific Railway of Canada in the Canadian Rockies and in the Peace River country in Northern Alberta, died Aug. 18 in Washington, D. C.

Philomena Caputo, 44, first woman graduate in architectural engineering from Massachusetts Institute of Technology, died recently at her home, Belmont, Mass. Miss Caputo had served with Stone & Webster Engineering Corp., and Cleverdon, Varnet, & Pike, consulting engineers.

Edwin A. H. Menges, 65, civil engineer and architect, died at Toronto, Ont., Aug. 4. A graduate of the University of Toronto in both civil engineering and architecture, he had been chief engineer of the Disher Steel Construction Co. Ltd., for the last 21 years. His early career was spent with Toronto and the firm of Reid and Brown.

MAJOR MEETINGS

American Association of State Highway Officials, 33d annual meeting, Waldorf-Astoria Hotel, New York City, Sept. 22-26.

Associated General Contractors of America, Inc., fall meeting, Savery Hotel, Des Moines, Iowa, Sept. 28-Oct. 1.

Institute of Traffic Engineers, 18th annual meeting, Hotel Fort Shelby, Detroit, Mich., Oct. 1-4.

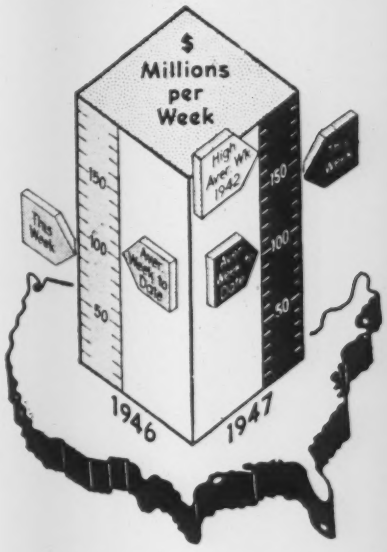
American Society of Civil Engineers, fall meeting, Roosevelt Hotel, Jacksonville, Fla., Oct. 13-17.

National Metal Congress and Exposition, Palmer House, Chicago, Ill., Oct. 18-19.

American Welding Society, annual meeting, Sherman Hotel, Chicago, Ill., Oct. 20-24.

Engineers' Council for Professional Development, 15th annual meeting, Mount Royal Hotel, Montreal, Canada, Oct. 24-25.

CONSTRUCTION ACTIVITY



As Reported this week to . . .
Engineering News-Record

CONTRACT VOLUME

Continental U. S. Only
(Thousands of Dollars)

	Week of Aug. 28 1947	Cumulative 1947 (35 wks)	Cumulative 1946 (35 wks)
Federal	$19,755	$453,072	$490,485
State & Mun.	32,775	1,139,996	940,783
Total Public	$52,530	$1,593,069	$1,431,268
Total Private	84,413	2,018,528	2,254,573
U. S. Total	**$136,943**	**$3,611,597**	**$3,685,841**

WHERE CONSTRUCTION ACTIVITY ORIGINATED THIS WEEK

Dollar Volume (Thousands)

Type of Work	This Week	Cumulative 1947 (35 wks)	Cumulative 1946 (35 wks)
Waterworks	$2,044	$73,981	$69,366
Sewerage	2,952	90,515	67,730
Bridges	2,564	115,876	93,635
Highways	14,194	544,238	542,602
Earthwork, Waterways	1,354	198,740	265,873
Buildings, Public	22,895	390,202	267,803
Industrial	24,289	560,376	693,517
Commercial	39,127	1,166,666	1,431,379
Unclassified	27,524	471,003	253,936

NOTE: Minimum size projects included are: Waterworks and waterway projects, $22,500; other public works, $40,000; industrial buildings, $55,000; other buildings, $205,000.

NEW PRODUCTIVE CAPITAL

	Cumulative 1947 (35 wks)	Cumulative 1946 (35 wks)
NON-FEDERAL	$1,549,664	$1,124,529
Corporate Securities	540,199	318,086
State and Municipal	761,754	581,443
Fed. Aid Highway	247,711	225,000
FEDERAL	818,729	1,714,695
Total Capital	**$2,368,393**	**$2,839,224**

ENR INDEX NUMBERS

Index Base = 100		1913	1926
Construction Cost	Aug. '47	415.00	199.49
Building Cost	Aug. '47	313.03	169.21
Volume	July '47	222	97

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 18, N. Y.

ELSIE EAVES, Manager *J. A. MAHONEY, Reports* *E. R. BIGGERSTAFF, M. R. ROESSLER, Statistics*

WATER SUPPLY

Construction Reports received since this section went to press will be found in Last Minute Construction Reports.

BIDS ASKED

Bids Asked September 2

Ga., Hampton—City, Hampton, WW imprvs. incl. 13,000 8 in. and smaller pipe. Over $22,500. J. J. Harte Co., Forsyth Bldg., Atlanta, engr. CD 7/27/46—ENR 8/9/46.

Bids Asked September 2

Tex., Fort Worth—City, W. O. Jones, mgr., 1 million gal. elevated storage water tank in Ridglea Addn., $200,000; 2 million gal. elevated water tank Seminary Hill, $300,000. U. Stephens, water supt. CD 8/31/44—ENR 9/21/44.

Bids Asked September 3

La., New Orleans—New Orleans Sewer & Water Bd., 526 Carondelet St., Contr. 260-W, laying approx. 430 lin. ft. 6 and 12 in. c.i. watermains and 2,000 lin. ft. 6 in. asbestos-cement watermains with appurtenances. Plans deposit $5.

Bids Asked September 5

Kan., Hiawatha—At office, Florence Norton, city clk., Hiawatha, constructing wells and well houses for addnl. water supply. Plans deposit $5. Wilson & Co., 223 N. Santa Fe St., Salina, engrs.

Bids Asked September 8

Ala., Cordova — Waterworks Bd., Jasper, WW imprvs. $75,000. O'Toole Engr. Co., Birmingham, engrs. CD 8/8—ENR 8/14.

Ont., Toronto—M. A. Lascelles, City Hall, supplying, installing and adjusting float operated equipment for transmitting water levels in St. Clair reservoir to High Level pumping station. G. G. Powell, City Hall, engr.

Bids Asked September 9

S. D., Pierre—City, J. W. Ihli, Aud., water well, pump, pump house, auxiliary equip., make tests into water bearing formation. Over $22,000. CD 6/17/43—ENR 6/24/43.

Bids Asked September 10

Ia., LeClaire—City, L. V. Mohr, clk., WW sys. incl. pump, well, pump house, water storage, distr. sys. $300,000. R. W. Gearhart, 349 21 St. S.E., Cedar Rapids, engr.

Bids Asked September 29

Mich., Benton Harbor—E. L. Tidey, city clk. Benton Harbor, constructing WW intake incl. 36 in. lake intake line with wooden crib and concrete valve manhole and cone valve. Plans deposit $10. Consoer, Townsend & Assoc., 22' W. Wacker Dr., Chicago, Ill., engrs. CD 6/18—ENR 7/10.

Bids Asked About October 1

Ga., Columbus—City, Columbus, watermain extens. $500,000. Wiedeman & Singleton, C & S National Bank Bldg., Atlanta, engrs. CD 7/17—ENR 7/24.

Bids Asked

Ia., Clear Lake—City, R. C. Ingersoll, city clk. WW imprvs., incl. water treatment plant complete with auxiliaries and appurtenances. Stanley Engineering Co., Muscatine, engr.

LOW BIDDERS

Ala., Fayette—Fayette, rejected bids July 7, WW sys., L. B. **$306,000.** Est. $200,000. CD 7/14—ENR 7/17.

Ky., Butler—City, Butler, Aug. 8, water treatment plant and river pumping station, from Tye & Wells Carrollton. **$14,949.** CD 7/17—ENR 7/24.

N. D., Minot—City, August 4, wells for city water from Layne Western Co., 3140 Snelling Ave., Minneapolis, Minn. **$72,798.**

●**N. J., Camden**—City, no bids contemplated this year, sewerage disposal plant. **$4,013,030.** CD 7/31—ENR 8/7, under BA.

Ore., Myrtle Creek—City, City Hall, pumping station 3,520 ft. 8 in. steel supply line from Settergren-Wiley Co., Ashland. **$33,329.** Est. $27,000. CD 8/1/45—ENR 8/9/45.

Pa., Cresson—Dpt. Property & Supplies, 18 and Herr Sts., Harrisburg, August 20, WW imprvs. at Tuberculosis Sanatorium, steel elevated water tank from Pittsburgh-Des Moines Steel Co., Neville Island, Pittsburgh, **$48,750**; rein.-con. reservoir covers from Means Bros., Swartz Bldg., Punxsutawney, **$19,880**; sludge bed cover, Imhoff tank, repairing syphon chamber cover, from Moyer Bros., 2605 Beale Ave., Altoona, **$35,640.** CD 7/23—ENR 7/31.

Wash., Tacoma—City, City Hall, August 6, welding 640 field joints in 58 in. steel supply main from Bond Welding Co., 1013 E. E St. **$30,129.** A. W. Kunigk, water Supt. CD CD 8/2/45—ENR 8/23/45.

CONTRACTS AWARDED

Ala., Selma—City Waterworks Comn., Selma, WW sys., to Jones & Hardy, Montevallo. **$58,808.** Bids 8/14. CD 8/4—ENR 8/7.

Ga., Columbus—Columbus Waterworks, c/o G. R. Lowe, mgr., 10 mi. 6 and 10 in. lines to serve 100 home subdivision on Massey Property near Buena Vista Hy. Own forces. **$100,000.**

O., Akron—City, laying water pipe from Kent pumping station to Lake Rockwell to The DeLuca Constr. Co., 105 Grant St. **$188,115.** CD 10/24/45—ENR 11/14/45.

Pa., Phila—Dpt. Pub. Wks., City Hall Annex, watermains, various locations, WW1-347 to M. & J. B. McHugh, 892 N. Markel St. **$52,557.** Elbert J. Taylor, Water Bureau Chief.

Pa., Phila.—Dpt. Pub. Wks., City Hall, watermains, Verree and Welsh Rds., Grant Ave. WW1-222 to A. Di Sandro, 937 Unruh St. **$147,857.** Elbert J. Taylor, Water Bureau Ch. CD 10/19/44—ENR 11/2/44.

†**S. C., Parris Island**—Officer Charge of Constr., Pub. Wks., Dept., Parris Island, water pipeline from Beaufort Naval Air Station to Burton Wells, NOY 14222 to C. A. McDaniel, 813 Harden St., Columbia. **$108,284.** CD 4/30—ENR 5/8.

Wis., Milwaukee—City, lay watermain in N. 3 St. to L & L Service Co., 906 E. Center St., Zone 12. **$91,739.** J. P. Senwada, city engr. Bids 8/14, awarded 8/15.

Alta., Olds—Town, J. E. McLeod, secy., waterworks and sewer systems to Wilson & Wilson, 11014 88 Ave., Edmonton. **$225,000.** Haddin & Miles, Ltd., 9 Argyle Court, Calgary, engr. CD 9/4/45—ENR 9/6/45.

Wash., Spokane—City, City Hall, 75,300 ft. 6 to 10 in. c.i. pipe for water sys. imprvs. to Hughes & Co., S. 119 Howard St. **$143,874.** Bids 7/24.

Ont., Ottawa—City, 10 in., Class 250 feeder main, Chapel St. from Somerset St. E to Mann Ave.; 8 in. feeder main on Mann St. from Russell to Marlborough Aves., connected with mains on intervening streets, own forces. Approx. **$31,625.** W. E. MacDonald, c/o owner.

Que., Rouyn—Town, D. Desilets, secy., waterworks and sewer construction to Dan Lamothe Ltd., 210 Ninth Ave., Noranda. Approx. **$43,000.** C. Hare, c/o owner, engr. Bids 7/28. CD 7/22—ENR 7/24.

Que., St. Louise—Municipality, J. L. Gagnon, secy., WW imprvs., day labor. Approx. **$30,000.** G. Demers, 126 St. Peter St., Quebec City, engr. Tenders returned as submitted.

PROJECTS COVERED

Projects—By Size

Construction projects here reported cover the United States and Canada, are of these minimum sizes or larger: water supply, earthwork, waterworks $22,500; other public works $40,000; industrial buildings $55,000; other buildings $205,000.

Classes of Construction

(Name in order of Listing)

Water Supply	Latin America
Sewers, Waste Disposal	Public Buildings
Bridges	Commercial Buildings
Streets & Roads	Industrial Buildings
Earthwork, Waterways	

Unclassified

Stages Reported

PROPOSED WORK: Including appointment of engineers or architects.

BIDS ASKED (new announcements only). For full calendar, see also preceding issues of ENR.;

LOW BIDDERS: On jobs below $500,000 value all low bidder news will be the final reports published on the projects involved except where award is not made to the low bidder. In this case, a supplementary contract award report will be published.

CONTRACTS AWARDED: Except awards to low bidders previously reported in low bidder stage.

Dates shown are of issue in which last previous report was published.

Symbols and Abbreviations Include:

†	Federal Government
●	Project of $1,000,000 or over.
ENR	Engineering News-Record
CD	Engineering News-Record Construction Daily

SEWERS, WASTE DISPOSAL

Construction Reports received since this section went to press will be found in Last Minute Construction Reports.

BIDS ASKED

Bids Asked September 2

Ia., Miles—City, H. Jargo, clk., sewers and sewage plant. $85,000. H. R. Green Co., 427 1 Ave. S. E., Cedar Rapids, engrs.

Neb., Sidney—City, Sidney, sewers and sewage plant, $165,000. E. Y. Grupe, Scotts Bluff, consult. engr. CD 4/2/45—ENR 4/5/45.

Bids Asked September 3

N. Y., Ossining—Bureau Contracts and Accounts, Albany, sewage disposal plant at Sing Sing Prison. Plans deposit $20. CD 1/2—ENR 1/23.

Bids Asked September 5

Kan., Abilene—At office M. E. Calkins, city clk., sanitary sewer extens. Plans deposit $5. Wilson & Co., 223 N. Santa Fe St., Salina, engrs.

Minn., Wanda—Village, M. P. Gorres, clk., approx. 6,533 lin. ft. 8 in. sanitary sewers, 25 manholes, etc., sewage disposal plant. Over $40,000. Plans deposit $2. H. A. Davis, 417 Commerce Bldg., St. Paul, engr.

Bids Asked September 8

N. Y., Lawrence—Bd. Trustees Village, Village Hall, 196 Central Ave., sewage treatment plant addns. Plans deposit $10. Malcolm Pirnie Engineers, 25 W. 43 St. New York, Zone 18, engrs. adv. ENR 8/28. CD 6/21/44—ENR 6/29/44.

Bids Asked September 9

Ga., Adairsville—City, Adairsville, sanitary sewer imprvs. incl. 25,000 lf. 8 and 10 in. lines and disposal plant. Over **$75,000.** Plans deposit $15. J. P. Baksin & Assoc., Rome, engrs.

Minn., St. Anthony—Village, J. R. Johnson, clk., 3,325 lin. ft. 9 in. sanitary sewers, 57 manholes, 12,750 lin. ft., 12 to 36 in. storm sewers, 19 manholes, 36 sewer catch basins, inlets, 1 concrete bulkhead. Over $40,000. MacGregor & Davis, 1108 Nicollet Ave., Minneapolis, engr. Extended date.

Pa., West Mifflin—West Mifflin Boro, incinerator, Contr. A, furnaces with appurtenances and radial stack. Contr. B, building with foundations, septic tank, filter piping, Contr. C, wiring, Contr. D, plumbing. $100,000. Plans deposit $25. C. L. Todd, 2313 E. Main St., Richmond, Ind., engr.

Bids Asked September 10

Calif., Los Angeles—Los Angeles Co., Hall of Records, installing sanitary sewers Flower St. and other streets in vicinity of Bellflower. CD 8/13—ENR 8/21.

LOW BIDDERS

Calif., Long Beach—City, City Hall, Aug. 18, North Boundary Storm Drain Pump Station, west of Atlantic Ave., next to F. C. channel north of Artesia St., from W. C. Smith, Inc., 2119 Pacific Ave., Long Beach. **$309,000.** Est. $351,974. CD 12/6/44—ENR 12/28/44.

Calif., Los Angeles—Los Angeles Co., Hall of Records, Aug. 12, installing sanitary sewers in Donovan St. and other streets 4.29 mi. CI 1192, from Arthukovich Brothers, 7320 N. Atlantic Ave., Hynes, **$84,399.** Est. $85,000.

Calif., Roseville—City, City Hall, received no bids Aug. 13, Elm Court Sewers. $40,000.

Calif., Santa Maria—City, City Hall, Aug. 18, sewage treatment plant addns., from Fred J. Early Jr. Co., 360 Pine St., San Francisco. **$211,553.** CD 2/14/46—ENR 3/7/46.

Calif., Woodland—City, City Hall, Aug. 18, sewer sys. addns., from Freethy-Fogelberg Co., 1432 Kearney St., El Cerrito. **$47,840.**

Conn., Bridgeport—City, F. D. Schwarzkopf, city clk., City Hall, Aug. 20, sewers, Sect. 3, Housatonic, Ortega, Soundview, Sylvan, Grandview, Daniels Trumball and Alpine Avenues in part, from C. & T. Constr. Co., 631 Lindley St., Bridgeport. **$42,565.**

Ill., Peoria—Greater Peoria Sanitary and Sewage Disposal Dist., foot of Darst St., received no bids Aug. 13, Proj. 10SD, incl. 23,500 ft. 8 to 15 in. sanitary sewer, appurtenances, etc. Est. **$132,476**; Proj. 9SD, incl. 72,000 ft. 8 and 10 in sanitary sewers appurtenance, from Emil Till, 1815 Newcastle Avenue, Chicago, **$35,855.** Est. $32,736. CD 7/25—ENR 7/31.